

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Unlicensed Use of the 6 GHz Band)	ET Docket No. 18-295
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz)	GN Docket No. 17-183
)	

COMMENTS OF THE CITY OF LOS ANGELES

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EXECUTIVE SUMMARY

Commission efforts to expand access to spectrum for innovative uses, including unlicensed spectrum, are laudable, but such innovation cannot come at the expense of public safety or the reliability of critical communications that ensure the smooth and monitored function of utility operations. It is in this spirit that the City of Los Angeles files these comments in an effort to enhance the Commission's appreciation of, and sensitivity to, the City's existing dependence on the 6 GHz band, and the severe harm that could result should the Commission's final rules fail to sufficiently protect the City's existing uses.

The City of Los Angeles makes substantial use of the 6 GHz band, and has serious concerns about the harm that could arise from any interference with the Band's vital public safety, utility monitoring, and infrastructure operations uses in and around the City of Los Angeles. The City relies on its more than one hundred and forty (140) 6 GHz microwave links to support: public safety and utility communications, emergency response, and critical infrastructure monitoring and management for one of the nation's largest cities, and the country's largest municipal utility.

Any final sharing plan must ensure complete protection for incumbents, and address in detail: the Commission's criteria for AFC operators; responsibility for harm caused by interference; and specific technical measures intended to prevent any interference with mission-critical public safety and critical infrastructure systems.

The City hopes to ultimately be in a position to support a consensus sharing plan developed over the course of this proceeding, but such an outcome is only possible if any such plan preserves and protects existing essential public safety and utility communications operations.

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I. INTRODUCTION

The City of Los Angeles, California¹ (“City”) submits these comments in response to the Federal Communications Commission’s (“Commission”) Notice of Proposed Rulemaking² (“NPRM”) regarding potential unlicensed use of the 6 GHz band (“Band”). These comments were prepared on behalf of the Los Angeles Information Technology Agency and the Los Angeles Department of Water and Power, both of which act under the leadership of the City Council of Los Angeles and Los Angeles Mayor Eric Garcetti.

The Information Technology Agency (“ITA”) works with agencies and departments across the City of Los Angeles to develop world-class IT infrastructure and applications that provide the city’s citizens, businesses, and visitors with the digital services they expect from a leading global city. The Los Angeles Department of Water and Power (“LADWP”) is the largest municipal utility in the nation, providing power and water services to millions of the City’s residents, businesses and visitors.³

As explained more fully in this filing, the City makes substantial use of the Band, and has serious concerns about the harm that could arise from any interference with the Band’s vital public safety, utility, and infrastructure operations uses in and around the City of Los Angeles.

Commission efforts to expand access to spectrum for innovative uses, including unlicensed spectrum, are laudable, but such innovation cannot come at the expense of public

¹ Los Angeles, with an estimated population of 3,999,759, is the second most populous city in the United States. The City is home to residents from more than 140 countries, speaking 224 different identified languages.

² *In the Matter of Unlicensed Use of the 6 GHz Band*, Notice of Proposed Rulemaking, ET Docket No. 18-295, FCC 18-147 (rel. Oct. 24, 2018) (“NPRM”).

³ LADWP, through its membership in the Southern California Public Power Authority, is separately submitting an additional letter in response to the NPRM.

safety or the reliability of critical communications that ensure the smooth and monitored function of utility operations. It is in this spirit that the City files these comments in an effort to enhance the Commission's appreciation of, and sensitivity to, the City's existing dependence on the Band, and the severe harm that could result should the Commission's final rules fail to sufficiently protect the City's existing uses.

The City hopes to ultimately be in a position to support a consensus sharing plan developed over the course of this proceeding, but such an outcome is only possible if any such plan preserves and protects existing essential public safety and utility communications operations.

II. THE CITY OF LOS ANGELES CONTINUES TO SUPPORT COMMISSION EFFORTS TO RESPONSIBLY EXPAND ACCESS TO WIRELESS SPECTRUM.

A. The City Supports Making Broadband Universally Available and Understands that Expanding Spectrum Access is an Essential Element in Making Ubiquitous Affordable Broadband a Reality.

In 2015, Los Angeles Mayor Eric Garcetti stated: “[e]xpanding, improving and strengthening Internet access throughout Los Angeles is vital to further accelerating L.A.’s economic growth — and affordable service is essential to erasing a digital divide that leaves too many people without the tools to maximize potential in the 21st century.”⁴ Mayor Garcetti and the Los Angeles City Council remain committed to this vision,⁵ and “to bringing 5G to the residents of Los Angeles.”⁶

⁴ City of Los Angeles, *Mayor Garcetti Announces Major Upgrades to Internet Speeds Across Los Angeles* (Dec. 8, 2015), available at https://www.lamayor.org/mayor_garcetti_announces_major_upgrades_to_internet_speeds_across_los_angeles.

⁵ See, e.g. Resolution of the City Council of the City of Los Angeles, *Affordable Broadband Program / Disadvantaged Residents of Los Angeles*, File No. 15-0002-S100 (adopted Sep. 22, 2015) (“...closing the Digital Divide is critical to the economic prosperity and quality of life for the residents, businesses and numerous stakeholders of the City of Los Angeles and throughout

Los Angeles has worked hard with wireline providers to drive broadband as deep into the community as possible, but understands that increasingly consumers want mobile broadband access. And to meet this growing demand, the Commission must identify and clear additional spectrum. The rapid growth in demand for spectrum the nation has experienced over the past decade will only continue, if not grow. Spectrum is an essential ingredient in enabling a wireless broadband future, a future that will support not only expanded use of mobile devices, but also connected and autonomous cars, smart grids and an ever-expanding Internet of Things.

The common denominator in enabling a wireless broadband future is expanded access to spectrum. The Commission and the nation can meet this hunger for spectrum: 1) by identifying spectrum that is unused or assigned to the federal government and can be made available for commercial use; and 2) by enhancing the efficiency of how we are currently using spectrum.

The City has previously supported Commission efforts to include additional unlicensed spectrum in new and innovative licensing models,⁷ and appreciates the Commission's continuing efforts to enable next-generation technologies to make use of even more spectrum.

California.”), available at http://clkrep.lacity.org/online/docs/2015/15-0002-S100_reso_09-16-2015.pdf; see also City of Los Angeles Information Technology Agency Request for Participants, *CityLinkLA Initiative for Deployment of Advanced Broadband Systems*, 4-5 (approved by City Council Jun. 12, 2015) (“Through the CityLinkLA initiative, the City intends to encourage, to the extent feasible, rapid deployment of a network or networks that can deliver world-class broadband Internet access – at speeds 1 Gbps or higher – to all residences, multi-unit dwellings, and businesses through wireline and Wi-Fi connections.”), available at http://clkrep.lacity.org/online/docs/2013/13-0953_misc_06-04-2015.pdf.

⁶ *Ex Parte Letter from Gerard Lavery Lederer on behalf of the City of Los Angeles*, WT Docket No. 17-79, WC Docket No. 17-84, at 2 (Sep. 19, 2018) (attaching letter from Mayor Eric Garcetti to the Commission).

⁷ See Reply Comments of the City of Los Angeles, California, GN Docket No. 17-258 (Jan. 29, 2018).

B. Efforts to Expand and Share Spectrum Access Cannot Be Allowed to Compromise Critical Communications Infrastructure.

As the Commission seeks to meet the nation's need for additional spectrum, it must always recognize and protect vitally important uses by incumbents, especially when those uses support public safety and utility infrastructure monitoring and utility operations. In this proceeding, therefore, it is essential that the Commission first understand the sensitivity, and the potential risks, associated with permitting unlicensed operations in the Band.

As a heavy user of the Band, the City offers itself as a resource to the Commission, and its staff, as you seek to better understand Los Angeles' operations and the impact various proposal may have on those operations. The City stands ready to share real-world examples of incumbent uses of 6 GHz spectrum, and the risks and harms that could be the result of interference with those operations. While the City is open to considering the possibilities of sharing the 6 GHz band with unlicensed use, we will not support any proposal that could jeopardize the reliability of critical public safety and utility communications systems.

The City does appreciate that the Commission has recognized the impracticability of some previous proposals for the Band, and has avoided any suggestion that incumbent users simply relocate their functions to other bands if they need to avoid interference.

III. THE CITY OF LOS ANGELES MAKES EXTENSIVE USE OF THE 6 GHZ BAND TO SUPPORT PUBLIC SAFETY AND PUBLIC UTILITY OPERATIONS.

The City uses both fixed and mobile 6 GHz microwave links to support public safety, and utility operations across the region. More specifically:

The Information Technology Agency serves, twenty-four hours a day, three hundred and sixty-five days per year, as a central resource for 41 City departments, 48,000 City employees, 4 million L.A. residents and the tens of millions of annual visitors to the City, as well as the 97,000

businesses spread across City's 469 square miles. ITA provides a broad array of services to the City and its residents, ranging from computer support and enterprise applications all in support of the City's police, fire and emergency response communications. ITA manages 56 fixed 6 GHz microwave links to support these public safety communications.

The City of Los Angeles Department of Water and Power is the largest municipal utility in the United States. It provides both power generation and distribution to more than 1.6 million customers via 23 generation plants and more than 3,500 miles of transmission circuits, 15,000 transmission towers, and tens of thousands of utility poles and other pieces of power infrastructure. LADWP also serves more than 680,000 water customers through more than 7,300 miles of distribution pipe network and maintains more than 60,000 fire hydrants. LADWP maintains 90 6 GHz microwave links which, along with 920 miles of fiber, form the backbone of a communications system spanning portions of California, Oregon, Utah, and Nevada.

The 6 GHz band plays an integral and irreplaceable role in the operations of ITA and DWP and the lives of the people of Los Angeles.

A. Public Safety Communications

1. ITA

ITA maintains 6 GHz data links to provide backhaul for police, fire, and EMS communications and dispatch. Nearly 10,000 Los Angeles Police Department officers, and thousands of Los Angeles Fire Department firefighters and other first responders, rely every day on 6 GHz links maintained by ITA. An example of the demands the Band supports for just the Los Angeles Fire Department would include providing a response to more than 400,000 calls annually.

It is not just the City's 4 million residents that rely upon the services the Band makes possible. Los Angeles hosts more than 45 million visitors annually. We are a destination city

for special events like conventions, concerts, marathons, sporting events and the City's third Summer Olympics in 2028.⁸

ITA also provides 6 GHz mobile connectivity to law enforcement aviation units. This use of the Band permits distribution of real-time video from the City's aviation units to law enforcement personnel on the ground, saving lives and property.

Finally, one of the unique challenges ITA faces in supporting its public safety customers is the sheer size of the City of Los Angeles. Officers and firefighters across the City must be able to rely at all times on their communications – downtime, or interference, are simply unacceptable when lives are at stake. And as the City continues to grow, and prepares to host the Super Bowl in 2021 and the Olympics in 2028, any disruption to essential public safety systems is the last thing the City needs, and interference is the last thing these systems can tolerate.

2. LADWP

LADWP uses its 6 GHz links to support a land mobile radio system used by its employees to maintain communications even when inspecting and servicing the far reaches of LADWP's extensive transmission and distribution network. In times of crisis, when utility service is critical for first responders to respond to earthquakes, wildfires, civil disturbances, and other crises, this separate network ensures LADWP employees have reliable and robust communications to facilitate protection and restoration of power and water utility services.

A. Electricity

LADWP's 6 GHz links support numerous mission-critical systems whose reliability and continued operation are integral to the continued operation of the power grid. These links support, for instance, supervisory control and data acquisition ("SCADA") networks and relay

⁸ Los Angeles hosted the 1932 and 1984 Summer Olympics games and will become only the third city ever (joining London and Paris) to host its third Summer Games in 2028.

protection systems which are essential to support the safe, reliable, and effective delivery of essential electric service.

For example, LADWP's high-voltage transmission system includes relay protection systems which requires the highest possible levels of reliability. The transmission line protection systems consist of relays located at substations throughout the power system, connected to both ends of a transmission line. If an electrical fault occurs along the transmission line, these systems detect the fault, and automatically open circuit breakers at the appropriate substations in order to clear and isolate the line fault and maintain the stability of the transmission system. Each transmission line is protected by a primary, and at least one redundant, relay system. These systems rely on high-uptime, low-latency point-to-point microwave links in the 6 GHz band in order to detect faults in milliseconds and take appropriate remedial action.

LADWP also uses SCADA networks, which incorporate 6 GHz microwave links, to monitor and control the flow of electricity over the grid. These SCADA systems send telemetry from energized substations to LADWP's Energy Control Center, allowing LADWP to proactively manage its power grid.

Interference with the operation of these 6 GHz microwave links could be disastrous. Any potential interference could lead the relay system, which depends on reliable 6 GHz links, to malfunction and create instability. A failure of the system to respond immediately to a transmission fault could lead to cascading failures throughout the power grid, resulting in wide-area blackouts. Power system failures endanger public safety, and create an extra layer of crises for law enforcement, fire rescue, and medical personnel.

LADWP is also a regulated utility, subject to the both state and federal regulations regarding its operations. In particular, LADWP's transmission network is subject to reliability

standards adopted and enforced by the North American Electric Reliability Corporation (“NERC”) and the Federal Energy Regulatory Commission.⁹ Violations of NERC reliability standards, such as improper operation of the relay system, which could be caused by interference with 6 GHz links, may result in mandatory fines that are typically assessed in the hundreds of thousands of dollars per event. The City urges the Commission to consult with its sister Federal agencies which oversee utility operations and traditionally utilize the 6 GHz band, in an effort to maximize the Commission’s understanding of the potential impacts of interference in the band and minimize the threats to LADWP and its customers.

B. Water

LADWP’s water system uses 6 GHz microwave links to support SCADA systems monitoring measurements of water levels, system pressures, turbidity, distribution, and chlorination and fluoride content. Water measurement systems as far away as the Sierra Nevada Mountains monitor water supplies and send data to the City using 6 GHz microwave links. Intrusion alarms and security systems, water pump information systems, and other data all flow into water control centers. These systems provide excellent visibility into the function, and security, of the water system, and allow LADWP staff to monitor and control the supply and

⁹ LADWP must be in compliance with NERC Reliability Standards as set forth in Section 215(a)(3) of the Federal Power Act, 16 U.S.C. § 824o(a)(3); *see also* North American Electric Reliability Corporation, *Reliability Standards* (last accessed Feb. 15, 2019), <http://www.nerc.net/standardsreports/standardssummary.aspx> (“Section 215 of the Federal Power Act requires the Electric Reliability Organization to develop mandatory and enforceable Reliability Standards, which are subject to Federal Energy Regulatory Commission (Commission) review and approval. Commission-approved Reliability Standards become mandatory and enforceable in the U.S. according to the Implementation Plan associated with the Reliability Standard, as approved by the Commission.”) Compliance with these obligations may be severely impacted by any improper relay operation or degradation in SCADA communications resulting from interference with 6 GHz microwave links.

demand of water. If these 6 GHz links suffer interference, LADWP's water system, an infrastructure of national importance, will face compromised security and operational integrity.

Furthermore, as a condition of some water rights agreements, LADWP is obligated to maintain accurate measurements of water volumes consumed to ensure compliance with those agreements, and to provide water flow data as a condition of some court settlements. Failure to meet any of these obligations could result in substantial fines in the event of noncompliance, including forfeiture of water assets.

LADWP must be able to depend on the high uptime and reliability of its 6 GHz microwave links in order to protect the public's safe drinking water supply and comply with its state and federal regulatory obligations, and to meet its commitments under various contracts and settlements. The Commission should take care that its ultimate sharing framework does not impose risk of violation of these requirements on water utilities.

C. Disaster Response and Recovery

In times of crisis, both ITA and LADWP make use of the 6 GHz band to support their critical missions. ITA will, for example, establish temporary 6 GHz links from its fixed network to field command vehicles to provide data and voice transport for law enforcement personnel. LADWP plays a critical role in emergency response, as well – maintaining and restoring utility service during and after a crisis is one of the City's top priorities alongside maintaining law & order and protecting life and property. The City's first responders depend on DWP services to keep fire hydrants charged with water to fight fires, and to keep power flowing to support law enforcement and medical operations. If the 6 GHz links relied upon by ITA and LADWP are compromised by interference, the already challenging task of tackling emergency situations will be greatly exacerbated by the disruptions to communications and critical infrastructure. Even when commercial cell phone networks and other communications means are degraded or totally

offline, the continuation of these radio services are essential; the 6 GHz links on which they rely cannot suffer degradation, no matter what.

IV. HIGHLY SENSITIVE OPERATIONS IN THE 6 GHZ BAND SERVE THE PUBLIC GOOD AND MUST BE PROTECTED

The City's central concern in responding to this NPRM is to ensure that the Commission fully appreciates the importance, and sensitivity, of the City's existing reliance on the 6 GHz band. The City anticipates offering further substantive comments on the Commission's proposals in reply comments, and offers this initial feedback on several aspects of the Commission's proposal below.

A. Strict Governance and Prompt Enforcement Will Be Essential to the Viability of AFC Systems.

Notably absent from the Commission's proposal was detailed discussion of enforcement and remediation mechanisms to address any interference that may result. Given the immense harm and, in some cases, monetary penalties that may be imposed on Los Angeles as a result of interference with data carried over existing 6 GHz links, the City strongly urges the Commission to establish clear criteria by which it will evaluate:

- potential AFC operators;
- potential requirements for authorization to operate an AFC; and
- the Commission's intentions regarding oversight and governance of AFC operators, and unlicensed Band users, on an ongoing basis.¹⁰

If, for instance, interference resulted from an error or omission in an AFC database, how would the Commission address this? If mandatory fines, as are imposed on electric utilities in

¹⁰ The City appreciates that the NPRM does mention some of these topics. *See* NPRM at ¶¶ 33-35. But the NPRM offers no concrete proposals – it simply asks questions. The Commission must ensure all stakeholders have ample opportunity to review and comment on a final, substantive proposal, before the Commission takes final action.

the event of certain occurrences, are incurred by 6 GHz incumbent operators due to unlicensed interference with their communications, how will the Commission ensure incumbent users are indemnified for such injury and the responsible party brought to account?

The City further believes that the Commission's rules must clarify that interferers are ultimately responsible for the harms which arise from that interference. The rules should clarify that operating on channels approved by an AFC does not absolve an interfering party from responsibility for the results of interference. Ultimately, the Commission must make clear to all stakeholders whether and to what extent it will exercise oversight of the band on an ongoing basis. Such clarity is required if incumbent operators are asked to share the band, for such incumbents are entitled to know the Commission's commitment to protecting incumbent users on an ongoing basis.

B. Any Sharing Plan Must Preserve Flexibility and Growth Potential for Incumbent Users.

One of the benefits of an AFC to incumbents may be the ease of updating the AFC's database to reflect newly added microwave links. The City strongly urges the Commission to maintain the flexibility 6 GHz microwave users currently have within the band. While the City understands the Commission's goal of making available additional spectrum for unlicensed use, the City encourages the Commission to preserve the ability of incumbents to develop and expand their networks. Such flexibility needs to be present regardless of the impact on future unlicensed users of the band. It is essential that the City retain the ability to add and modify microwave links in the 6 GHz band.

C. Any AFC Must Rely On The Most Accurate and Complete Data Available To Protect Incumbent Users.

The City is concerned that the Commission's proposal relies on Universal Licensing System ("ULS") data as the basis for calculating exclusion zones and available frequencies for

unlicensed operations.¹¹ The City acknowledges that licensees are obligated to maintain up-to-date information (and as a licensee, the City takes this responsibility seriously), but the record reflects significant concern about the sufficiency, accuracy and timeliness of the data submitted.¹² The City strongly urges the Commission to require AFC operators to rely upon the best data available, or to implement multiple sets of data to ensure completeness. There cannot be too many safeguards to avoid interference to vital incumbent 6 GHz operations.

D. Unlicensed 6 GHz Devices Must Be Required to Make Every Effort to Avoid Interference.

Technological measures and mechanisms should be put in place to ensure that inaccuracies and errors in the data are neither provided, nor relied upon by the AFC so as to avoid interference to sensitive operations.

For instance, the Commission should consider a “listen-before-talk” requirement. While the technical details may vary, the City calls on the Commission to require that any unlicensed device operating in the Band, and subject to AFC control, be required after receiving data from the AFC about available channels, to first listen for a period of time to ensure that the channel(s) it intends to use are not already in use. Such a requirement should apply to client devices as well as Access Points, to ensure that unintended but potentially harmful interference at the edges of an access point’s range is kept to an absolute minimum.

The Commission should also require that any wireless communications between the Access Point and the AFC, and any communication between any mobile device and any Access Point regarding 6 GHz channel availability, be conducted over non-6 GHz frequencies. Such a

¹¹ NPRM at ¶ 39.

¹² See Ex Parte Letter from the Fixed Wireless Communications Coalition, GN Docket No. 17-183, ET Docket No. 18-295, at 2 (Oct. 15, 2018) (“ But ULS is incomplete and error-prone as to FS receivers; and the Commission charges a \$305 filing fee per call sign for making corrections. More complete and accurate databases exist.”)

requirement, particularly if paired with a listen-before-talk mandate, could substantially reduce the possibility that, in the course of seeking available channels from the AFC or operating in reliance on AFC guidance, interference will inadvertently occur.

As described in great detail above, the City's public safety and utility operations that are supported by use of the Band are vital to the City. As the Commission recognized, many 6 GHz links require very high uptime and reliability.¹³ It is therefore imperative that the Commission require unlicensed users to adopt all available means to mitigate interference. Before any such devices are brought to market, furthermore, the Commission must conduct real-world testing of AFCs, access points, and client devices across a variety of environments, to ensure the systems work as designed and no interference results. Unlicensed use of the Band cannot be permitted to jeopardize, in any way, critical operations commonplace in the Band today.

E. The AFC Must Collect Sufficient Information About Access Points to Permit Rapid Investigation and Mitigation of Interference.

The sensitivity of uses of the Band, and their understandably low tolerance for interference, necessitate a somewhat different approach to unlicensed use than that applied in, for instance, the 2.4 GHz and 5 GHz bands. Specifically, the Commission must ensure that information about access points is quickly and easily available to facilitate rapid resolution of interference issues. The NPRM asks whether device registration is necessary; the City firmly believes it is.¹⁴

The AFC should collect, at minimum, location data about each Access Point, and ideally may require operators of Access Points to provide additional identifying information. That is not

¹³ NPRM at ¶ 9.

¹⁴ *Id.* at ¶ 28.

to say, that the AFC should in any way permit violations of the privacy of unlicensed users of the Band.

The City further recognizes and supports the protection of digital communications users' privacy and security. The City is only requesting the collection of that data necessary to identify and contact Access Point operators, not necessarily their individual users or client devices.

F. The AFC Must Update With Sufficient Frequency to Permit Necessary Deployment of Temporary 6 GHz Links Without Any Interference Risk.

In addition to preserving flexibility for current and future licensed users of the 6 GHz band, the Commission must, as it has suggested, also ensure that any AFC is capable of responding to changing spectrum usage needs by licensees.¹⁵ In times of crisis, or when additional capacity is temporarily required at a particular location, (such as to support a major event) the City may seek temporary authorization from the Commission to deploy additional links. Any AFC system must be sufficiently nimble to promptly incorporate these new links into its database, and proactively push updates to connected Access Points and client devices so as to ensure that any potential interference is mitigated as quickly as possible.

G. Excluding Some Access Points from the AFC Unacceptably Increases The Risk of Harmful Interference.

The City is concerned with the Commission's proposal to exclude lower-power indoor access points from mandatory AFC registration prior to operation.¹⁶ Fixed microwave links in Los Angeles are used to span long distances between Downtown Los Angeles and outlying areas. At the limits of operational 6 GHz link ranges, signal strengths are significantly lower than at the emitter, and receivers on long-distance links are configured to be more sensitive to ensure they accurately pick up these weaker signals. As a result, they are also more sensitive to

¹⁵ *Id.* at ¶¶ 29-30.

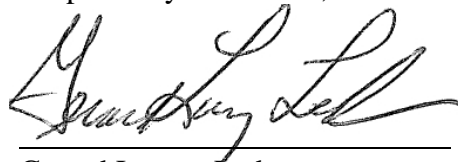
¹⁶ *Id.* at ¶ 61.

interference and, therefore, may not be able to coexist with even lower-power access points. Excluding these access points from the AFC will result, particularly in dense urban environments like Downtown Los Angeles, in unlicensed 6 GHz access points operating in close proximity to sensitive existing 6 GHz links. Furthermore, without AFC registration, there is no easily accessible means of tracking down such access points in the event of interference. It is therefore imperative, in order to both minimize the risk of risk of interference as much as possible, and to maximize the Commission's ability to immediately address interference issues to sensitive systems as they arrive, that the Commission require all access points operating in the 6 GHz band to register with the AFC.

V. CONCLUSION.

The City of Los Angeles is committed to working with the Commission to meet the nation's need for additional spectrum. When it comes to shared use of this Band, however, Los Angeles has grave concerns about the potential impact on vital public safety and utility infrastructure communications. The City appreciates the Commission's close attention to the significant potential impacts of interference in this band, and expects to share additional input as the record develops further.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Gerard Lavery Lederer", written over a horizontal line.

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